John

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Testimony of MidAmerican Energy Company

Before the
Iowa Environmental Protection Commission
January 13, 2009

Rescission of the Clean Air Mercury Rule from the Iowa Administrative Code

- During today's meeting, DNR staff will be presenting several regulatory options for addressing the vacatur of the Clean Air Mercury Rule (CAMR).

- MidAmerican Energy Company encourages the Environmental Protection Commission to **adopt Option 2** and ***rescind the Clean Air Mercury Rule provisions from the Iowa administrative rules by amending 567 IAC Chapters 23, 25, and 34.***

- Continued compliance with the vacated CAMR is not possible and places both regulated entities and the Iowa DNR at risk of agency and/or third party enforcement actions.

- Imposing these current obligations on MidAmerican facilities would result in the inability to achieve compliance through no fault or negligence on the part of MidAmerican.

- At its October 14, 2008 meeting, the EPC deferred action on the DNR's Notice of Intended Action to rescind the CAMR provisions.

- MidAmerican believes it is necessary and appropriate to remove from the state air quality rules the CAMR regulations for the following reasons:

    - The U.S. Court of Appeals for the District of Columbia Circuit has original jurisdiction over appeals from federal agency rules, including those promulgated by the U.S. Environmental Protection Agency. The court's rulings vacating the CAMR are currently on appeal but have not been stayed. Therefore, the CAMR can not be implemented by the EPA, by the state of Iowa, or by any other state.

    - Mercury monitors are in place for all of MidAmerican's coal units. However, the monitors have not been certified (RATA) to collect valid compliance data. These monitors <u>can not be certified</u> because there is no approved standard by which to certify the mercury monitors. In addition, via letter dated June 19, 2008, the DNR communicated to regulated

entities that as a result of the CAMR vacature, the January 1, 2009 certification requirement is no longer in place.

- The accuracy of the mercury monitoring systems in a utility stack emissions measurement setting has considerable room for improvement. MidAmerican's experience has shown that significant differences between the Method 30B measurements (sorbent trap) and the mercury continuous emission monitor (CEMS) exist. The CEMS results are erratic and do not line up with actual Method 30B test results. Large unexplained swings in the measured stack mercury concentration have been observed.

- To date, no CAMR compliance allowances have been allocated.

- Concern was expressed by several EPC commissioners at the October 14, 2008 meeting that rescinding these vacated federal regulations would unduly harm the environment and jeopardize the public health of Iowa citizens.

- MidAmerican wants to address these concerns by highlighting that we as a company are committed to operating in an environmentally responsible manner that is protective of public health and the environment.

- This commitment has been demonstrated in the near-term investment of **over $400 million in significant capital projects** to reduce and monitor emissions from its coal-fueled electric generating units.

- Specific to mercury, the following investments have been made:

  - The Walter Scott Energy Center Unit 4 was among the first entities in the United States to install controls to reduce mercury emissions. Prior to the promulgation of the now vacated CAMR, MidAmerican committed to the installation of an activated carbon injection system at the Walter Scott Energy Center Unit 4 and continues to operate that system.

  - Continuous emissions monitors for mercury have been installed at all of MidAmerican's coal-fueled facilities.

  - Additional mercury controls are planned for the Walter Scott Energy Center Unit 3 and Louisa Generating Station. Further, the completed addition of a scrubber and baghouse at Louisa Generating Station and the ongoing addition of a scrubber and baghouse at the Walter Scott, Jr. Energy Unit 3 have ancillary benefits of reducing mercury emissions (in addition to SO_2 and particulate) and position these units to make significant reductions in mercury emissions.

- These projects were voluntarily accelerated in advance of the compliance requirements of CAMR and the **control equipment will continue to be operated *regardless*** of the final outcome of appeals in the CAMR litigation.

- **In closing, MidAmerican requests that the EPC adopt DNR's proposed option 2 and rescind the vacated CAMR provisions as currently reflected in the Iowa regulations at 567 IAC 23.1(2)(z), 23.1(4), 23.1(5)(d), 25.3, and 34.2 through 34.308, including applicable tables, and all other references to requirements originating under CAMR.**

- MidAmerican would like to weigh in on one additional matter.

- MidAmerican is aware that amendments to the regulation and beneficial use of coal combustion residue are being considered by the DNR and will be discussed during today's meeting. MidAmerican would be pleased to answer any questions that the commission and DNR has about our coal combustion residue and product management and to participate in any advisory committee formed.

www.plainsjustice.org

January 8, 2009

Richard Leopold, Director
Iowa Department of Natural Resources
Wallace State Office Building
502 East 9th Street
Des Moines, Iowa 50319-0034

Re: Iowa Administrative Code Chapter 567-108, "Beneficial Use Determinations: Solid By-Products as Resources and Alternative Cover Material"

Dear Director Leopold:

Plains Justice, Iowa Chapter of Physicians for Social Responsibility, Environment Iowa, Community Energy Solutions, Iowa Environmental Council, Union of Concerned Scientists, and Iowa Citizens for Community Improvement write to request that the Iowa Department of Natural Resources (DNR) rethink its decision to postpone the rulemaking process for Iowa Administrative Code Chapter 567-108. We respectfully request that DNR take the following action before making a decision about the future rulemaking process:

1. Expand the stakeholder process to include, at minimum, representatives of public health and environmental organizations and agencies;
2. Provide statewide public notice of the July 2008 Chapter 567-108 revisions;
3. Take additional public comment on the July 2008 Chapter 567-108 revisions; and
4. Hold public hearings in counties with quarry or mine coal combustion waste fill sites.

A significant proportion of coal combustion waste disposed of annually in Iowa is currently being dumped in unlined quarries that pose a threat of groundwater contamination demonstrated by contamination at similar sites in other states as well as elevated contaminant levels in monitoring wells at coal combustion waste sanitary landfill sites in Iowa (*see* Plains

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Justice, *Iowa Coal Combustion Waste Disposal* (November 2007)). The unlined sites include: Lee Crawford Quarry (Linn County), Waterloo South Quarry (Black Hawk County), Boone County Quarry, and Linwood Mining site (Scott County). These sites are adjacent to residential areas and rural water sources, and are operating without groundwater monitoring and without financial guarantees in case of contamination. At least one site is operating with a variance to allow disposal of waste with heavy metal concentrations in excess of state soil quality standards. Perhaps because of its lax regulation of this waste stream, Iowa is the recipient of coal combustion waste from several neighboring states (including Wisconsin, which tightened its regulations after contamination incidents) and as far away as Indiana. The July 2008 Revision of Chapter 567-108 does not allow coal combustion waste to be disposed in quarry fill sites without meeting the requirements of IAC Chapter 567-103, "Sanitary Landfills: Coal Combustion Residue," which was slated for revision and amendment after the Chapter 567-108 changes were finalized. This is a necessary but insufficient improvement in Iowa's coal combustion waste disposal regulation.

It is imperative that Iowans be allowed to comment on DNR's proposal to suspend the revision of Chapter 567-108. Coal combustion waste is currently disposed of throughout the state without monitoring and recordkeeping requirements. By re-releasing the July 2008 Revision for a statewide public hearing and comment period before making a decision regarding the Chapter 567-108 rulemaking, DNR can ensure that "human health, safety and the environment" are considered along with industry concerns about cost. Before indefinitely shelving the Chapter 567-108 rulemaking process in favor of a wholly insufficient voluntary monitoring phase, please notify Iowans and give us a chance to be heard.

Thank you for your consideration.

Sincerely,

Nicole Shalla
Staff Attorney

On Behalf of: Plains Justice, Iowa Chapter of Physicians for Social Responsibility, Environment Iowa, Community Energy Solutions, Iowa Environmental Council, Union of Concerned Scientists, and Iowa Citizens for Community Improvement.

Cc: Governor Chet Culver
Chad Stobbe
Henry Marquard, Chair, Environmental Protection Commission

Chad Stobbe

Environmental Protection Commission:
Update on Coal Ash Management at Quarry/Mine Reclamation Sites
(January 13, 2009)

- The department completed a review of solid waste regulations 4 years prior, which identified several solid waste chapters as outdated and in need of rulemaking. IAC 567 Chapter 108, titled "Beneficial Use Determinations: Solid By-Products As Resources And Alternative Cover Material" was one of those rules that was identified, however, due to a lengthy rulemaking regarding municipal solid waste landfill regulations (Chapter 113), this rulemaking was delayed.

- In the spring of 2008, the department was petitioned by the Iowa Utility Association (IUA) to revise certain provisions of Chapter 108. The most significant revisions requested were to remove all references to "fill material" and to clarify that fill projects are not beneficial use projects, as these beneficial fill activities more closely resemble landfills and should be regulated according to landfill rules. The department has specific landfill rules for coal combustion wastes (Chapter 103), but are minimal and need to be revised at the same time as the Chapter 108 revisions.

- Given the department's rulemaking plan wanted to expand the scope of the rulemaking beyond what was being proposed in the IUA's petition, the petitioner agreed to additional time in order to provide stakeholders (utilities, environmental groups, quarries, solid waste industry, etc.) with a thorough opportunity for participation and discussion prior to initiating any formal rulemaking.

- In July 2008, the department circulated a memo to stakeholders outlining the proposed amendments, including a draft version of the rule, with the request for feedback.

- In October 2008, the department circulated a "Stakeholder Comment Summary and Next Steps" memo that attempted to address the comments received. In an effort to provide access into the rulemaking process, all written comments submitted have been posted on a webpage specifically dedicated to this rulemaking (http://www.iowadnr.com/waste/policy/beneficialuse.html).

- Based on those comments, the department incorporated revisions that ultimately changed the scope of the rulemaking. It was again reiterated that the proposed amendments were not a part of any formal rulemaking, and that the department would provide another opportunity for feedback on the proposed amendments prior to initiating any formal rulemaking.

- Regarding the use of CCR for reclamation at quarries, it was apparent from the comments received that there was a strong opposition from industry regarding the additional cost of compliance in upgrading to meet the same requirements as landfills, such as groundwater monitoring, liners, and financial assurance.

- The reoccurring theme was that due to the lack of site specific monitoring data from Iowa quarries/mines using CCR for reclamation, that the suggestion that there's an environmental impact lacks scientific backing to substantiate the proposed level of environmental regulation. While the department can document that some constituent migration is occurring at existing permitted CCR landfills, reclamation sites are not currently required to collect groundwater data.

- Based on the comments received, the department proposed incorporating rule provisions for existing quarry reclamation sites to gather site geology and groundwater monitoring data, to assess whether constituents are migrating offsite. This data would then be irrefutable and would be used to direct additional rulemaking regarding the appropriate level of environmental controls (liner, leachate collection systems, monitoring, etc.) for these sites.

Beneficial Use Fill Project Requirements
(IAC 567 Chapter 108.6 - 108.7)

Analytical Testing of Fill Material:

1) Toxicity Characteristics Leaching Procedure (TCLP, EPA Method 1311).
2) Synthetic Precipitation Leaching Procedure (SPLP, EPA Method 1312) – less than or equal to 10 times the maximum contaminant levels (MCL) for drinking water. Foundry sand and coal combustion by-products may limit the SPLP analytes to total metals for drinking water.
3) Total Metals Testing – By-product must meet the department's statewide standards for soil pursuant to IAC 567 Chapter 137. Arsenic levels shall be consistent with the statewide standards for soil or the naturally occurring (i.e. background) arsenic levels of the soil, whichever is greater. *"Statewide standards" are standards prescribed in the LRP which represent concentrations of contaminants in groundwater and soil for which normal, unrestricted exposure is considered unlikely to pose a threat to human health.*
4) The solid by-product shall produce a fill that has a pH greater than or equal to 5 and less than or equal to 12.

Site Requirements:

1) The by-product shall not be placed in a waterway, wetland or any waters of the state or extend below or within 5 feet of the high water table.
2) The by-product shall not be placed within the 100-year floodplain, unless in accordance with all local and department regulations, including IAC 567 Chapter 71.5(455B).
3) The by-product shall not be placed closer than 200 feet to a sinkhole or to a well that is being used or could be used for human or livestock water consumption.

Solid By-Product Management Plan Requirements:

1) Lists the source(s) of the solid by-product.
2) Lists procedures for periodic testing of the solid by-product to ensure that the chemical and physical composition has not changed significantly.
3) Provides a description of storage procedures including:
   - Storage location(s) and maximum anticipated inventory, including dimensions of any stockpiles.
   - Run-on and run-off controls, which may include a storm water NPDES permit.
   - Management practices to minimize uncontrolled dispersion of the solid by-product.
   - Maximum storage time, not to exceed 6 months unless authorized in writing by the department.
4) All generators shall maintain all records related to the solid by-product management plan for a minimum duration of five years and shall submit to the department within 60 days of the end of the calendar year the following information for each beneficial use project or activity:
   - The location of the project.
   - The tons of solid by-product utilized for the project.

Quarry Reclamation Using Coal Combustion By-Products

(January 13, 2009)

State	Regulatory Agency	Regulated as Landfill	Liner Required	Groundwater Monitoring Required	Financial Assurance Required	Rule Reference	Additional Information
Minnesota	Minnesota Pollution Control Agency					Beneficial Use: 7035.2860	Was not able to reach.
Wisconsin	Wisconsin Department of Natural Resources	Yes	Yes	Yes	Yes	Solid Waste Chapters 504 and 538	Reuse of CCR is based on testing results. If project exceeds 30,000 cubic yards, it's considered a large project and requires public notice. They've allowed side slope stabilization in quarries with CCR, but a quarry completely filled with CCR is regulated as a landfill.
Illinois	Illinois Environmental Protection Agency	Yes	Yes	Yes	Yes	Title 35, Subtitle B, Part 816	
Missouri	Missouri Department of Natural Resources	Yes – For Utility Wastes	Yes	Yes	Yes	Title 10 CSR80 – Beneficial Use: 2.010 Utility Waste: 11.010	They've had some mine reclamations for small quarries with cement kiln dust, and only one small reclamation project CCR mixed with other by-products. Missouri does allow filling of underground mines with CCR similar to Linwood – regulated by the mining division. Industries that burn coal are not regulated as a utility (specific for generation of electricity) however, all CCR waste from these industries is disposed of in MSW LFs.
Nebraska	Nebraska Department of Environmental Quality	Yes	Yes	Yes	Yes	Title 132, Chapter 4 (Primary Requirements), Title 132, Chapter 7 (Groundwater Monitoring.)	There are currently no mine or quarry reclamation projects occurring in NE, however, if such a site was proposed, it would be regulated as a CCR landfill with applicable environmental controls.
South Dakota	South Dakota Department of Environment and Natural Resources	No	No	No	No	ARSD 74:27	Mine reclamation projects only involve the use of Lime Kiln Dust and Cement Kiln Dust, in which no liner or groundwater monitoring requirements are imposed. The only requirements involve dust control measures and cover requirements. South Dakota only has two power plants – one backhauls CCR back to a Wyoming coal mine and the other has a small monofill. The monofill has no liner installed, no financial assurance, but does require groundwater monitoring.

Quarry Reclamation Using Coal Combustion By-Products

(January 13, 2009)

Permitted Coal Combustion Residue (CCR) Landfills in Iowa:

1. Interstate Power & Light Lansing Power Station (03-SDP-05-01) – No Liner
2. Cedar Falls Utilities CCR Landfill (07-SDP-11-89) – No Liner
3. Corn Belt Power Cooperative CCR Landfill (21-SDP-04-95) – No Liner
4. Iowa Army Ammunition Plant CCR Landfill (29-SDP-03-82) – No Liner
5. Grain Processing Corporation CCR Landfill (58-SDP-03-92) – No Liner
6. Cargill Sweeteners – North America Landfill (62-SDP-04-89) – Clay Liner
7. Muscatine Power & Water CCR Landfill (70-SDP-06-82) – Clay liner in one area, unlined in another
8. Central Iowa Power Cooperative CCR Landfill (790SDP-09-91) – No Liner
9. MidAmerican Energy – Louisa Generating Station CCR Landfill (70-SDP-16-04) – No Liner
10. MidAmerican Energy – Walter Scott Jr. Energy Center (78-SDP-26-06) – Composite Liner
11. Ottumwa-Midland CCR Landfill (90-SDP-08-92) – Clay Liner
12. MidAmerican Energy – Neal North CCR Landfill (97-SDP-12-05) – No Liner
13. MidAmerican Energy – Neal South CCR Landfill (97-SDP-13-98) – No Liner

Current Quarry Reclamation & Mine Stabilization Sites in Iowa:

1. Lee Crawford Quarry Reclamation (57-SDP-23-97X) – Cedar Rapids
2. Wendling Quarries/Beneficial Tech. – Goose Lake Quarry Reclamation (23-SDP-15-03X) – Goose Lake
3. Basic Materials Corporation – Waterloo South Quarry Reclamation (07-SDP-20-02X) - Waterloo
4. Linwood Mining & Minerals/AMSCO – Subsurface Mine Stabilization (82-SDP-13-93X) - Buffalo

Closed Reclamation Sites in Iowa:

1. Violet M. Meier Gravel Pit Reclamation (closed 2004) - Boone

DesMoinesRegister.com

January 13, 2009

More tightly regulate coal-ash disposal

The Register's editorial

Iowa should more strictly regulate quarries, mines and landfills that are dumping grounds for coal ash - a byproduct of combustion at coal-fired electric power plants - by requiring state-of-the-art liners and multiple monitors to safeguard human health and the environment.

A devastating coal-ash spill in Tennessee in December renewed attention to this potential threat to drinking water, but Iowa's Department of Natural Resources already had drafted rules to tighten oversight because monitors for at least four landfills in Iowa had detected metals in groundwater nearby in 2007 and 2008. Coal ash can leach toxic substances that could cause cancer and neurological and developmental problems in people and damage aquatic life.

However, the Register's Perry Beeman reported Jan. 1 that state regulators want to shelve the proposed new rules for as long as three years, largely because of industry protests. One opponent - the Iowa Association of Business and Industry - argued in comments on the department's Web site that proposed changes regarding "beneficial use" of coal ash as fill at quarries "would create financial hardships for the businesses and citizens of the state while not providing any thoroughly examined or quantified environmental benefit."

The federal government does not regulate disposal of coal ash, though it should. Each state sets its own rules. The amount of coal ash produced in the country has risen because of greater demand for electricity and better air-pollution controls, which result in more solid waste.

Do more monitoring first, before changing rules?

Iowa's DNR is considering first conducting groundwater monitoring at the coal-ash sites that do not now have monitors to see what turns up, before taking further action.

So it comes down to this: Is existing evidence of groundwater pollution from coal-ash sites in this state and elsewhere enough reason to start putting tougher rules in place now, or should the state hold off to see what is going on specifically at the three quarries and the mine site?

Our recommendation to the Iowa Environmental Protection Commission, which meets today: Direct the DNR to move toward stricter regulation of all sites without delay.

Err on the side of protecting people and the outdoors by requiring liners and thorough monitoring at every site as soon as possible, because studies have found coal ash can contain substances such as arsenic, lead and mercury. The Baltimore Sun recently reported that a judge approved a $54 million settlement between Constellation Energy and residents of Gambrills, Md., whose drinking water was polluted by coal ash. And a 2007 U.S Environmental Protection Agency report listed 63 sites in 26 states where water was contaminated by heavy metals from coal-ash dumps, according to the New York Times.

Iowa shouldn't risk that.

Patchwork rules differ for quarries, mines vs. landfills

State environmental specialist Chad Stobbe explained that no decision has been made and that the DNR is merely considering a delay in designating all coal-ash sites as landfills. A landfill designation would mean quarry and mine sites taking coal ash would have to install at least one monitor, provide some groundwater protection (though what sort is not specified in current rules) and provide a financial guarantee of ability to close a site if contamination occurs, he said.

Iowa does not now require the three quarries and one mine site in the state used for coal ash to have liners or monitors, Stobbe said. There also are 13 landfills that take only coal ash. Each landfill must have at least one monitor, but it is not required to have liners, although four do, either clay or plastic.

Plains Justice, a public-interest environmental-law center based in Cedar Rapids, issued a report on coal ash in 2007, contending the state's coal-combustion waste regulations "pose a significant risk to human health and the environment." The chief reform the center seeks is a comprehensive monitoring system for all sites taking coal ash, said founder Carrie La Seur: "At the very minimum, it would allow us to evaluate and respond to the risks." Even at the landfills, data are insufficient, she said.

There's also an economic risk to taxpayers if contamination occurs and ash-site operators can't pay for the cleanup, she said.

Iowa law prohibits pollution of groundwater, which suggests the state could do much better in how it handles coal ash than its current inattentive approach.

Additional Facts

Learn more

To read comments by interest groups about the state's draft rules for coal ash, go to www.iowadnr.com/waste/policy/beneficialuse.html.

Opinion

The Des Moines Register

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Register Editorial

More tightly regulate coal-ash disposal

Err on side of protecting public health, outdoors

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Review of Assessment Methods for Estimating Atmospheric Deposition of Mercury Compounds in Iowa

Iowa Department of Natural Resources
Air Quality Bureau

April 24, 2006

Executive Summary

This document reviews the available tools for assessing atmospheric mercury deposition. These tools could be applied for developing more reliable statewide information on mercury deposition. In general, available methods range from identifying sources of mercury emissions in relation to water bodies and other geographic features to more sophisticated and complex methodologies such as global computer models.

Project Background

Concurrent with approval to begin the rulemaking process to adopt the U.S. Environmental Protection Agency's (EPA) Clean Air Mercury Rule (CAMR), the Environmental Protection Commission (EPC) and the Director of the Iowa Department of Natural Resources (department) requested that Air Quality Bureau staff review and report to the EPC and Director on assessment methods for estimating atmospheric mercury deposition in Iowa, with special emphasis on areas of excessive deposition, also referred to as "hot spots." Technical tools, such as computer models used to simulate air pollutant dispersion and deposition, have been applied by EPA and researchers to estimate mercury deposition. Further, while the evaluation of mercury deposition provides unique challenges, department staff has extensive skills and experience in the application of these tools for other air pollutants and those skills are generally applicable to mercury deposition analyses. This document completes that review.

Introduction

On November 21st, 2005, the department submitted for information to the EPC proposed rules designed to implement the requirements of CAMR. This action, when final, would serve to meet the state's obligation regarding national reductions in atmospheric mercury emissions from coal fired electrical generating units.

At the foundation of CAMR is a national emissions cap and trade system. This market based system establishes a cap on the total amount of mercury emissions that can be emitted from coal fired electrical generating units nationwide. Within the federal rule each state is apportioned a cap on mercury emissions from coal fired electrical generating units, and while it is at the states' discretion as to how it will meet that cap, implementation of the federal emissions trading program is the federally preferred approach and also the approach proposed for state implementation.

Emissions trading programs such as that proposed under CAMR accomplish environmental goals on a collective basis. For the purpose of CAMR, the environmental goal is a reduction in the emissions of mercury to the atmosphere from coal fired electrical generating units. As a collective goal, the requirement to reduce emissions of mercury applies to the coal fired electric generating sector in general and not any electric generating unit specifically. The decision regarding which specific electrical generating units will reduce mercury emissions is entirely left up to that industry. As the emission cap is set to a level below current emissions, and continues to decrease with time, mercury emissions must decrease. Implementing this decrease via an emissions trading program allows the industry to identify the most cost effective approach to reducing mercury emissions.

One uncertainty associated with any emissions trading program is identifying which units will be the ones to reduce emissions. Since this system is a national cap it is not necessary for any specific unit to decrease emissions, some units could increase emissions of mercury. With this uncertainty comes the concern that not all areas will see equal reductions in the deposition of mercury compounds, or that some areas of the country could experience an increase in mercury deposition. Local areas in the vicinity of a mercury source that have some measure of high mercury deposition are often referred to in the literature as "hot spots." The department prefers the use of the terminology "excessive deposition" as it more neutrally describes the status of the largely unknown environmental effects. While such an environmental result does not appear to have occurred as a result of a similar program to reduce deposition of acid rain, the concern remains a valid uncertainty.

This uncertainty was discussed by members of the commission during the November 21st, 2005, meeting, and department staff was directed to identify options for addressing excessive deposition of mercury. As a result department staff developed language for inclusion in the proposed rules that would allow the Director to modify permits to major stationary sources to mitigate excessive mercury deposition. On December 19th, 2005, the

EPC granted the department permission to proceed with a rulemaking for CAMR which included language regarding mitigation of excessive mercury deposition.

The department reviewed assessment methods for estimating atmospheric mercury deposition in Iowa at the request of the EPC and the Director. In general, the goal of this review was to perform a basic literature search to identify and bracket the appropriate application of various technical tools used in assessing atmospheric mercury deposition.

Discussed in greater detail below are five primary areas of technical specialization that could be applied to estimate atmospheric mercury deposition in Iowa. These areas are:

- Mercury source mapping
- Mercury emissions inventory
- Mercury deposition monitoring
- Regional and global scale computer modeling
- Local scale computer modeling

While a brief review of mercury health impacts is provided below, it should be noted that the focus of this review is on assessment methods for estimating the amount of mercury being deposited to the surface of the earth from the atmosphere and as such covers only the deposition portion of the mercury cycle. A more detailed assessment of the mercury cycle to develop information or estimates about what happens after atmospheric mercury is deposited on the surface of the Earth is beyond the scope of this document. Investigation of physical processes such as soil erosion and identification of non-air point sources of mercury, along with biological processes such as methylization, bioaccumulation and human exposure and effect are necessary for a complete assessment of environmental and human health effects of atmospheric mercury emissions.

Health Effects

The following discussion is adapted from The Washington Department of Ecology, **Human health Effects of Mercury Exposure,** available online at**:**
http://www.ecy.wa.gov/programs/eap/pbt/hgeffectstohealth.html

> When released into the environment, mercury can bind with bacteria in water to create such compounds as methyl-mercury. When a fish eats organisms containing these bacteria, methyl-mercury is ingested and builds up in fish tissue. If a tainted fish is eaten, the methyl-mercury is completely absorbed into tissues and organs. Eating contaminated fish is the most common route of human exposure to methylmercury.
>
> Another route of human exposure to mercury in its pure, elemental form is through breathing vapors or tiny particles. This form of mercury is difficult for

humans to digest, but over time can be absorbed by the intestines and accumulate in the liver, spleen, kidneys and bone.

Whether a person's health is affected by mercury depends on many variables, including the person's overall health and age, the chemical form of mercury and the routes of exposure: breathing vapors or tiny particles, eating contaminated fish, skin contact, and from pregnant mother to fetus. Fetuses, infants and children are especially sensitive to mercury exposure, which is believed to be a potential cause of movement and learning disabilities.

Deposition Mechanisms

There are two methods in which mercury compounds in the atmosphere are transported to surface of the earth: wet and dry deposition. Wet deposition occurs as mercury species suspended in the air are captured in rain droplets or frozen precipitation (snow) and subsequently transferred to the Earth's surface. Approximately 40-75% of the mercury entering lakes and streams in the U.S. and Canada is through wet deposition[1]. With dry deposition the pollutants settle to the earth's surface in the absence of precipitation. Dry deposition is not dependent upon precipitation events. Current thought places the percentage of total mercury deposition attributable to the dry phase at 25-60%. In summary, dry and wet deposition are essentially equally important factors in the transfer of atmospheric mercury to the surface of the earth.

[1] David Gay: Presentation at the Lake Michigan Air Directors Consortium Mercury Workshop, Rosemont, IL, February 22nd, 2006.

Source Mapping

Geographic Information Systems (GIS) may be used to overlay mercury emissions data with other geographic data available to the department. The location of mercury emissions sources may be compared to areas of interest such as lakes, highly erodable land, or other features and can be included in a superficial review of spatial patterns. Such data could be used for early identification of regions that might be representative of "background" conditions of mercury deposition or environmental indicators such as fish tissue concentrations.

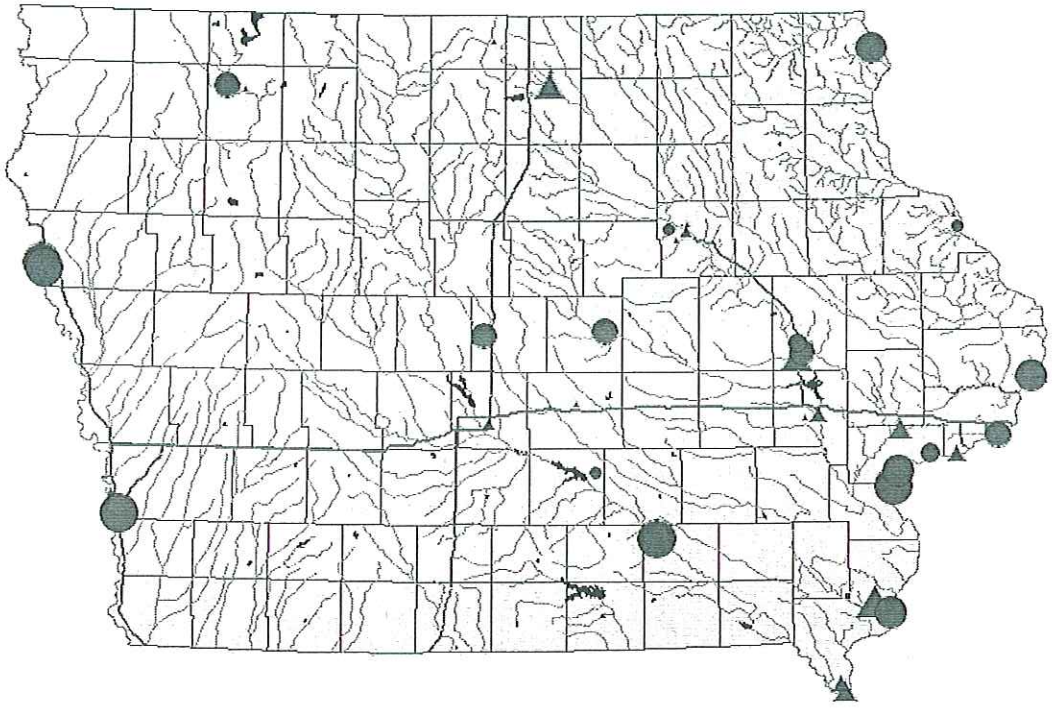
Source mapping techniques could also be expanded beyond 'location on a map displays' by integrating other forms of data analyses. Prevailing winds or the frequency of wind direction occurrences could be used to target specific areas such as water bodies or water sheds. If a goal is to sample fish tissue in the vicinity of a point source of mercury it may be useful to target that sampling at a location that is more frequently downwind, or downwind on days during which there is precipitation. Rainy days may be marked by a prevailing wind direction that is significantly different than the average prevailing winds.

It is likely that additional information in the form of mapping or mapping with associated data analyses could be identified as informative in the assessment of mercury deposition in Iowa. The ability to spatially compare data fields from different areas of specialties within the department will facilitate the ongoing evaluations.

A map of mercury emission sources is provided on the next page. This map is preliminary and subject to future refinement. Red circles represent the location of coal fired electrical generating units while purple triangles represent other mercury emission sources. In all cases the size of the symbol is scaled to the source's actual emissions as reported or estimated for the calendar year 2002, and is not meant to characterize the area of mercury deposition around the facility.

Source mapping can be used to quickly identify spatial relationships among important variables such as the relative density of source types or emissions in various parts of the state. Additionally, source mapping allows for the integration of information from multiple specialties where appropriate. This technique does have limitations. With regards to mercury deposition, a specific source location may or may not have a significant influence on fish tissue concentrations based on the numerous physical, chemical and biological processes that occur between emissions and fish tissue concentrations. Conclusions drawn from such analyses are not designed to accomplish substantive determinations of risk or culpability.

Year 2002 Total Mercury Emissions (in pounds)



Coal Fired Utility	Other Sources
0.00 - 2.08	0.00 - 2.08
2.09 - 10.00	2.09 - 10.00
10.01 - 26.26	10.01 - 26.26
26.27 - 61.40	26.27 - 61.40
61.41 - 100.00	61.41 - 100.00
100.01 - 435.42	100.01 - 435.42

Lakes
Rivers
Interstate
county

Mercury Emissions

Mercury is a naturally occurring element and as such, emissions to the atmosphere result from both natural and anthropogenic activities. Estimates of global atmospheric mercury emissions roughly apportion the mass of global atmospheric mercury releases as one-third from natural sources and one-third from direct emissions from man-made sources. The remaining one-third that is estimated to result from re-emission (volatilization) of previously deposited mercury[2,3]. Total mercury emissions from all emission sources, natural and human specific, are estimated at 4,850 to 8,250 tons per year[4].

Emission Source Types

As a first order estimate, atmospheric mercury emissions can be divided into four primary categories:

- Direct point-source emissions
- Direct area-source emissions
- Biogenic (natural) emissions
- Re-emissions

Direct point source emissions of mercury to the atmosphere can, for some source types, be characterized by the application of federally developed emission factors. In general these emission factors roughly estimate mercury emissions by multiplying the average mercury content of a fuel by the amount of fuel burned. Sources of atmospheric releases of mercury from non-combustion sources such as chlor-alkali plants or other processes utilizing mercury can be estimated through emission factors or through mass conservation calculations. Stack testing and continuous emissions monitoring requirements that are part of CAMR will result in more accurate estimates of mercury emissions from coal fired power plants[5]. Overall, emissions of mercury from point sources are likely more accurate, in a relative sense, than emission estimates from any of the other mercury emission categories.

Area source emissions are generally characterized as non-point sources of pollutant emissions. In contrast with point source emissions, area source emissions are not regularly defined by the amount of a pollutant emitted from a stack, but rather as the amount of pollutant emitted from an area. An example of an area source of mercury is an automotive crushing operation in which vehicles are manually compressed for later use

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[2] Seingeur, 2004 and Mason and Sheu, 2002 from EPA Website

[3] Seingeur, 2004 and Mason and Sheu, 2002 from EPA Website

[4] http://www.epa.gov/mercury/control_emissions/global.htm which references United Nations Environment Programme Global Mercury Assessment, 2002, using J. Pacyna 1995 data, as presented by the Arctic Monitoring and Assessment Programme

[5] The basis of the cap and trade program established under CAMR is accurate mercury emissions data for the coal-fired power plants subject to the rule. Each affected unit must measure mercury emissions using either a continuous emission monitors or sorbent trap monitoring system as specified in 40 CFR Part 75.82(b)(2)(ii). A detailed discussion of these requirements is Available online at: http://www.epa.gov/airmarkets/camr/FebStatusHg.doc

such as scrap metal. In this example, mercury contained in automotive switches or relays may be spilled during the compaction of a vehicle. This spillage will result in some fraction of the mercury transitioning from a liquid phase into a vapor phase in the atmosphere and being transported away from the release location on the prevailing winds. Mercury emissions from area-based emission sources are poorly defined and mass emission estimates are not widely available.

Similarly, estimates of the mass of mercury released to the atmosphere from re-emission and biogenic or natural sources are made in scientific literature. However, national and global scale modeling efforts, discussed later in this document, may provide an approach for quantifying the mass of re-emission and biogenic mercury emissions.

Mercury Species

Mercury is emitted to the atmosphere in one of three chemical forms: elemental, reactive gaseous or particulate mercury[6]. Various forms of mercury have differing chemical and physical properties which influence the atmospheric lifetime and eventual rate and method of atmospheric deposition. The level of accuracy regarding the description of the form or specie of mercury emitted from various processes is generally uncertain. Current state emission inventory efforts collect information regarding emissions of total mercury compounds and do not subdivide emissions into elemental, reactive gaseous or particulate mercury. In the *Mercury Study Report to Congress*[7] EPA speciated mercury emissions based on research conducted by Peterson et al., from 1995[8]. In the future, mercury stack testing and emissions monitoring required as part of CAMR may provide updated estimates of speciated mercury emissions from coal fired electrical generating units.

Iowa Mercury Emissions

Estimates of mercury emissions from sources in Iowa are currently limited to point source information collected as part of an annual inventory of emissions generated by major stationary sources in Iowa. To date, no specific efforts have quantified the area, biogenic, or re-emission of mercury within Iowa. Scale analysis of the magnitude of mercury released from point source mercury emissions as compared to research regarding estimated mercury mass emissions from area, biogenic, and re-emission totals would provide more information regarding the relative importance of non-point source emissions.

Mercury emissions reported in annual major industrial sources emission reporting were estimated to total 1.425 tons (~2,850 lbs) in 2002. Coal fired electrical generating units reported 0.962 tons (~1,924 lbs) emitted. Emissions of mercury during 2002 from sources other than coal fired electrical generating units totaled 0.463 tons (~926 lbs) and included

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[6] Dr. Mark Cohen, NOAA ARL, Modeling the Atmospheric Transport and Deposition of Mercury, Mercury Workshop, Great Lakes Biennial Meeting, Kingston, Ontario, Canada, June 9, 2005.

[7] Mercury Study Report to Congress

[8] Petersen, G., Å. Iverfeldt and J. Munthe. (1995) Atmospheric mercury species over Central and Northern Europe. Model calculations and comparison with observations from the Nordic Air and Precipitation Network for 1987 and 1988. Atmospheric Environment 29:47-68.

the facility reporting the single largest emission total in the state at 0.218 tons (~435 lbs). Data from calendar year 2002 were used as this period reflects the most recent triennial inventory report required by EPA.

The department has not conducted a comprehensive review of the accuracy of the mercury emissions estimates reported in periodic inventories contributed by non electric utility sources. The resulting level of uncertainty could be reduced by obtaining more data on mercury emitting processes at all major stationary sources and reviewing these data in an effort to better characterize the mercury emissions. Due to the stringent mercury emissions monitoring and reporting requirements of CAMR, emissions information from EGUs will improve after trading starts.

Mercury Measurements

Wet Deposition Measurements

The National Acid Deposition Program (NADP) was established by EPA to measure the effectiveness of its acid rain program in reducing acidic deposition in rainfall. The program is managed by the Illinois State Water Survey in Urbana, Illinois, and the data is aggregated and available online to the public. One of the components of the NADP network is the Mercury Deposition Network (MDN)[9]. The MDN currently consists of 95 sites across the U.S. and Canada. The MDN collects weekly samples of total (non-speciated) mercury in precipitation.

Dry Deposition Measurements

There are currently no practical methods for determining dry deposition rates with routine monitoring methods.[10]

Ambient Mercury Measurements

Some of the continuous emissions monitors developed for implementation of the CAMR allowance trading program have sufficient sensitivity to be used for ambient mercury measurements, and have been used by States[11] to quantify ambient mercury levels. The instrument manufactured by Tekran[12], provides speciated (reactive, elemental, and particulate) mercury data. Ambient mercury measurements may be used to compare with modeled ambient mercury concentrations, but cannot be used to directly determine wet or dry deposition rates.

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[9] http://nadp.sws.uiuc.edu/mdn/

[10] http://www.epa.gov/airnow//2006conference/wednesday/Cavender.ppt

[11] http://bronze.nescaum.org/committees/monitoring/nov05meeting/Hg-Tekran_NY-NJ.ppt

[12] http://www.tekran.com/products/ambient/2537.aspx

Regional and Global Scale Computer Modeling

In concept, a model is a computer program that attempts to recreate the behavior of a given system. Modeling techniques are frequently applied when solutions to complex environmental challenges are sought. Weather prediction and air quality remediation are two common disciplines in which modeling plays an important role. The term *regional* modeling simply refers to the geographic scale for which the model was designed. The term 'regional scale' is not bound by specific guidelines, but loosely refers to regions that range in size from that of a State up to continental scales. Two additional model classifications include local and global. Local models focus on areas in extent from a few hundred meters up to many tens of kilometers. Global scale models cover the entire Earth.

Projects involving the study of ozone and other gaseous pollutants have successfully been utilizing regional atmospheric models for several decades. In the 1990s such models were expanded to include particulate matter. The inclusion of mercury chemistry is a more recent development. For example, EPA's Community Multi-scale Air Quality model (CMAQ) first featured mercury chemistry in 2001[13]. Since that time, CMAQ has been involved in several mercury studies, including development of CAMR[14]. Additional regional models are also available to study atmospheric mercury, most notably the Comprehensive Air quality Model with Extensions (CAMx). Both models have been applied with varying degrees of success[15,16].

Regardless of the specific model chosen, conducting regional scale atmospheric mercury modeling involves three fundamental processes (further detail is provided below):

1) **Emission Inventory Development**: Accurately quantifying the emission of mercury species from natural and man-made sources.
2) **Meteorological Modeling**: Developing the surface and upper air meteorological fields to be used in the chemical transport modeling.
3) **Chemical Transport Modeling**: Predicting the transport, dispersion, and chemical transformation of mercury species in the atmosphere, including simulating how mercury in the atmosphere is deposited at the Earth's surface.

Emissions Inventory

The development of an accurate mercury emissions inventory is a challenging task. Accurately quantifying total mercury emissions from both natural and man-made area sources can be difficult as emission rates are variable and uncertainties exist. Point source emissions are more accurately quantified. However, obtaining total mercury emissions data is only the first step, as the chemical transport models require the emissions in

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[13] O. Russell Bullock, Jr: Presentation at the Lake Michigan Air Directors Consortium Mercury Workshop, Rosemont, IL, February 22nd, 2006.

[14] EPA, 2005: Technical Support Document for the Final Clean Air Mercury Rule. http://www.epa.gov/ttn/atw/utility/aqm_oar-2002-0056-6130.pdf

[15] Ibid.

[16] Greg Yarwood, et. al., 2003: *Modeling Atmospheric Mercury Chemistry and Deposition with CAMx for a 2002 Annual Simulation*, prepared for the Wisconsin Department of Natural Resources.

speciated form. Factors must therefore be obtained which partition the total mercury among its elemental, reactive gaseous, and particulate forms. Literature review, data mining, consultation with leading experts, and obtaining updated emission inventories from other states are common prerequisite tasks.

Meteorological Modeling

The development of adequate meteorological modeling fields requires implementation of weather models similar to those used by the forecasting community. As in all meteorological modeling, uncertainty and error can not be eliminated. Particular attention will need to be paid to the precipitation predictions due to the importance of wet deposition. Historically, modeling precipitation events accurately has proven challenging. Alternative techniques, such as scaling procedures which incorporate observational data[17], may need to be researched to improve precipitation fields.

Chemical Transport Modeling

Regional chemical transport models can be used to assess how changes in mercury emissions may impact mercury deposition. The development of CAMR utilized such an approach, employing the CMAQ model to assist with the development of the cap and trade program. Modeling data may also be useful in researching spatial and temporal patterns of mercury deposition across a given region. More sophisticated models provide the ability to track the mercury deposition attributable to specific sources and/or source sectors. Meteorological influences, such as precipitation variability over a regional scale, can also be assessed.

The quality of modeling data is highly dependent upon two factors: 1) the accuracy of the input data; and 2) the correctness of the science upon which the models are formulated. Meteorological and emissions data are two forms of input data previously discussed. Regional chemical transport models also require input data known as 'boundary conditions'. By definition, a regional model covers a limited area of the earth. Given the global nature of mercury transport, the concentrations of atmospheric mercury entering through the edge of a model domain (the boundary conditions) must be known. Such data can only be supplied through a global model. Global models are typically research grade and not suited for application within most State regulatory agencies. For certain years, such as 2001 and 2002, global model data is available from outside sources. Additional data may become available as mercury research continues.

The science governing mercury deposition is continuously under development and tools such as CMAQ incorporate the latest developments and reflect the current state-of-the-science. However, as noted in the CAMR Technical Support Documentation, currently assessing the accuracy of modeled predictions of total mercury deposition is hampered by a lack of observational data. No dry deposition measurement networks exist and the MDN sites are predominantly concentrated in the eastern U.S. Using the limited MDN dataset, EPA found CMAQ to generally underpredict mercury wet deposition by approximately 23%. No comments regarding the appropriateness of this value were

[17] Greg Yarwood, et. al., 2003: *Modeling Atmospheric Mercury Chemistry and Deposition with CAMx for a 2002 Annual Simulation*, prepared for the Wisconsin Department of Natural Resources.

provided. The lack of observational data, in combination with scientific and modeling uncertainty, could potentially limit whether the model could produce information useful to the department.

Local Scale Computer Modeling

Air dispersion modeling analyses are conducted to predict ground level ambient air concentrations of pollutants from a source of emissions. The air quality assessments associated with construction permits often include a dispersion modeling analysis to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS). Dispersion modeling is a preferred tool for this type of demonstration since modeling can be used to evaluate changes prior to construction and because modeling is not restricted by the spatial and temporal limitations of an ambient monitor.

The *Guideline on Air Quality Models* (40 CFR Part 51, Appendix W) specifies the preferred air quality models to be used for regulatory purposes and provides guidance for their use. There are a variety of types of models available for regulatory use, with varying levels of sophistication. For the past 25 years, the Industrial Source Complex Short-Term model (ISC) has been the main regulatory dispersion model for evaluating State Implementation Plans (SIPs), new source construction permits, risk assessments, and exposure analyses for toxic pollutants.

ISC is considered to be a steady-state Gaussian plume model. A steady-state model assumes that the emission source and meteorological conditions remain constant over a period of time. Gaussian models assume that the pollutant mass within the plume has a normal distribution (follows a bell-shaped curve) with the highest concentrations located at the center of the plume. The ISC dispersion model can be used to evaluate impacts from numerous industrial facilities in either rural or urban settings, located in areas with flat or rolling terrain, and is applicable for transport distances of less than 50 kilometers. Inputs include the source data (location, emission rate, stack height and diameter, the stack gas exit velocity and temperature, and possibly building information), a receptor grid (defining the locations where the predicted concentrations will be calculated), and five years of hourly meteorological data.

The ISC model can account for wet and dry deposition of both gaseous pollutants and particulate pollutants. Inclusion of wet and dry deposition in a modeling analysis requires additional information such as the chemical speciation of the mercury; information on the diameter, density, scavenging coefficients, and mass fraction of each size category of particulate mercury; and deposition velocities for the gaseous forms of mercury.

On December 9, 2005, the *Guideline on Air Quality Models* replaced the ISC model with the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) as the preferred model for most regulatory applications. Iowa will begin requiring the use of this regulatory model December 9, 2006, as required by federal regulation. AERMOD is also a steady-state Gaussian plume model with wet and dry deposition algorithms and many improvements including state-of-the-art equations that can better simulate the turbulent air layer next to the earth's surface and better characterize the movement of the air stream around building structures. Any future local scale mercury deposition modeling conducted by the department will be accomplished with AERMOD.

The ISC model has been used to evaluate local-scale deposition of mercury to varying degrees of success. In the *Mercury Study Report to Congress* the deposition of mercury emissions were evaluated by a simulation of regional-scale emissions over a one year period and prediction of local-scale transport. One application of ISC included a study designed to examine the possibility that emissions from coal-fired power plants might lead to "hot spots" of mercury deposition[18]. Results from this report found little correlation between the modeled and monitored data.

Unknowns associated with emissions data, the processes affecting the wet and dry deposition of mercury, and the atmospheric chemistry of mercury, all contribute to uncertainty in model results. As the science improves, and as the changes are incorporated in modeling programs such as AERMOD, some of the uncertainties associated with modeling emissions of mercury will be reduced.

[18] T.M. Sullivan, B. Bowerman, J. Adams, F.D. Lipfert, S.M. Morris, A. Bando, R. Pena, and R. Blake. (2005) Local Impacts of Mercury Emissions from Coal Fired Power Plants, Brookhaven National Laboratory BNL-73967-2005.

Risk Assessments and Health Effects

The current review is limited to evaluating the applicability of tools that could be applied in estimating atmospheric deposition of mercury in Iowa. This represents only a portion of the mercury cycle relevant to the environmental or public health endpoints of interest. The assessment tools reviewed in this document will not directly provide estimates of resulting fish tissue concentrations of mercury or human exposure and risk assessments. In fact, estimates of mercury deposition to the surface of the earth are only one step in comprehensive risk assessment. As noted in Sullivan (reference above) the following additional steps also influence the eventual human health outcomes:

- Terrestrial transport (e.g., runoff)
- Aquatic processes
- Methylation and bioconcentration leading to mercury levels in fish
- Capture and consumption by humans
- Other sources of methyl mercury
- Resulting steady state body burden
- Concentration in fetal brain
- Adverse health effects

In some instances the estimates of atmospheric mercury deposition can be used by health experts as inputs to evaluate risk assessment and health effects of the components listed above. As mentioned in the executive summary, it is important to note that atmospheric deposition estimates will not necessarily be directly correlated with fish tissue concentrations or human health effects. For example, high deposition occurring in an area where deposited mercury is immobilized and sequestered from methylation and bioaccumulation may not likely result in adverse human health effects. However, subsistence type consumption of fish from a location prone to methylation and bioaccumulation would more likely result in human health effects. In short, while assessing atmospheric deposition in particular areas where excessive deposition is estimated to occur can provide a level of understanding of the processes which result in human health effects, it is not a level that is fully inclusive.

Conclusion

Various tools are available that assist with efforts to estimate mercury deposition. Within the suite of tools available, no single resource is capable of providing a comprehensive picture of atmospheric mercury deposition and subsequent risk. The identification of additionally available skills for the evaluation of aspects of the mercury cycle beyond atmospheric deposition (or the development of partnerships) will be needed to fully assess the human health implications of mercury deposition in Iowa.

In the short term, source mapping tools combined with simple meteorological data analyses can be applied to facilitate decisions regarding fish tissue sampling location. In addition, department staff can continue to track improvements in mercury science and technical tools. These activities can provide rough estimates of possible locations of interest and a starting point for more targeted fish tissue sampling locations.

Ch. 65 – NPDES

Any interested person may make written suggestions or comments on the proposed amendments on or before **March 6, 2009**. Written comments should be directed to Gene Tinker, Iowa Department of Natural Resources, Wallace State Office Building, 502 E. 9th St., Des Moines, Iowa 50319-0034; fax (515)281-8895; email gene.tinker@dnr.iowa.gov.

Also, there will be public hearings as follows, at which time persons may present their views either orally or in writing:

March 3, 2009 7:00 p.m. Iowa Lakes Community College (tentative)
Room
1900 North Grand Avenue
Spencer, Iowa

March 4, 2009 9:00 a.m. DNR Field Office
Conference Room
1401 Sunnyside Lane
Atlantic, Iowa

March 4, 2009 3:00 p.m. Kirkwood Center for Continuing Education
Room 123
7725 Kirkwood Boulevard
Cedar Rapids, Iowa

March 5, 2009 2:00 p.m. Wallace State Office Building
5th Floor Conference Rooms
502 E. 9th Street
Des Moines, Iowa

At the hearing people will be asked to give their names and addresses for the record and to confine their remarks to the subject of the rule.

Any persons who intend to attend a public hearing and have special requirements such as hearing or mobility impairments should contact the Department of Natural Resources and advise of specific needs.

				Recreational Use Designations			Aquatic Life Use Designations		
	Stream Name	Basin	Rulemaking (Y/N)	Stream Segment Length (miles)	Current Use Designation	Recommended Use Designation	Aquatic Stream Segment Length (miles)	Current Use Designation	Recommended Use Designation
1	Apple Creek (Linn Co.)	Iowa-Cedar	Y	1.00	A1	A2	1	B(WW-1)	B(WW-2)
2	Ballard Creek (Story Co.)	Skunk	Y	4.75	A1	A2			
3	Bear Creek (Wapello Co.)	Des Moines	N	0.56	A1	A1	0.56	B(WW-1)	B(WW-1)
4	Bear Creek (Wapello Co.)	Des Moines	Y	2.61	A1	A2	2.61	B(WW-1)	B(WW-2)
5	Big Bear Creek (Poweshiek/Iowa Co.)	Iowa-Cedar	Y	2.04	A1	A3			
6	Big Bear Creek (Poweshiek/Iowa Co.)	Iowa-Cedar	Y	16.17	A1	A2			
7	Black Hawk Creek (Black Hawk/Grundy Co.)	Iowa-Cedar	Y	24.50	A1	A3			
8	Black Hawk Creek (Black Hawk/Grundy Co.)	Iowa-Cedar	Y	12.00	A1	A2			
9	Blue Creek (Benton/Linn Co.)	Iowa-Cedar	Y	6.33	A1	A2	5.1	B(WW-1)	B(WW-2)
10	Brewers Creek (Hamilton Co.)	Des Moines	Y	1.54	A1	A3	5.03	B(WW-1)	B(WW-2)
11	Brewers Creek (Hamilton Co.)	Des Moines	Y	3.49	A1	A2		B(WW-1)	B(WW-2)
12	Brush Creek (Marshall Co.)	Iowa-Cedar	Y	7.86	A1	A2	4.81	B(WW-1)	B(WW-2)
13	Bulger Creek (Dallas Co.)	Des Moines	Y	2.67	A1	A2	2.67	B(WW-1)	B(WW-2)
14	Burr Oak Creek (Jefferson Co.)	Skunk	Y	5.92	A1	A2	5.98	B(WW-1)	B(WW-2)
15	Clear Creek (Cerro Gordo Co.)	Iowa-Cedar	Y	1.61	A1	A2	1.61	B(WW-1)	B(WW-2)
16	Crooked Creek (Cedar Co.)	Iowa-Cedar	N	0.11	A1	A1	0.11	B(WW-1)	B(WW-1)
17	Crooked Creek (Cedar Co.)	Iowa-Cedar	Y	11.07	A1	A2	11.07	B(WW-1)	B(WW-2)
18	Crow Creek (Jefferson Co.)	Skunk	Y	3.10	A1	A3	3.1	B(WW-1)	B(WW-2)
19	Deep Creek (Plymouth Co.)	Western	Y	8.39	A1	A2			
20	Deep Creek (Plymouth Co.)	Western	N	0.69	A1	A1			
21	Deep Creek (Plymouth Co.)	Western	Y	9.42	A1	A2			
22	Drainage Ditch #13 (Hancock Co.)	Des Moines	Y	7.44	A1	A2	7.69	B(WW-1)	B(WW-2)
23	Drainage Ditch #4 (Wright Co.)	Des Moines	Y	2.47	A1	A2	2.47	B(WW-1)	B(WW-2)
24	Drainage Ditch #81 (Worth Co.)	Iowa-Cedar	Y	1.80	A1	A2	1.8	B(WW-1)	B(WW-2)
25	Dry Creek (Benton/Linn Co.)	Iowa-Cedar	Y	6.13	A1	A2		B(WW-1)	B(WW-2)
26	Dry Creek (Linn Co.)	Iowa-Cedar	Y	1.17	A1	A3	7.3	B(WW-1)	B(WW-2)
27	East Branch Blue Creek (Lin Co.)	Iowa-Cedar	Y	1.13	A1	A2	1.13	B(WW-1)	B(WW-2)
28	East Nodaway River	Southern	Y	35.04	A1	A2			
29	Elk Run (Black Hawk Co.)	Iowa-Cedar	Y	2.06	A1	A3			
30	Elk Run (Black Hawk Co.)	Iowa-Cedar	Y	0.83	A1	A2			
31	Flint Creek (Des Moines Co.)	Iowa-Cedar	N	6.14	A1	A1			
32	Flint Creek (Des Moines Co.)	Iowa-Cedar	Y	15.16	A1	A2			
33	Fourmile Creek (Kossuth Co.)	Des Moines	Y	10.70	A1	A2	10.7	B(WW-1)	B(WW-2)
34	Fourmile Creek (Union Co.)	Southern	Y	5.18	A1	A2	1.25	B(WW-1)	B(WW-2)
35	Fudge Creek (Wapello Co.)	Des Moines	Y	1.14	A1	A2	1.14	B(WW-1)	B(WW-2)
36	Granger Creek (Dubuque Co.)	Northeast	Y	7.10	A1	A2			
37	Hartgrave Creek (Franklin/Butler Co.)	Iowa-Cedar	Y	12.20	A1	A2			
38	Hawkeye Creek (Des Moines Co.)	Iowa-Cedar	Y	10.85	A1	A2	10.85	B(WW-1)	B(WW-2)
39	Hawkeye-Dolbee Diversion Channel (Des Moines Co.)	Iowa-Cedar	Y	2.97	A1	A2	2.97	B(WW-1)	B(WW-2)
40	Honey Creek (Delaware Co.)	Northeast	Y	13.70	A1	A2	4.8	B(WW-1)	B(WW-2)
41	Indian Creek (Audobon/Shelby/Cass Co.)	Southern	Y	25.65	A1	A2	3.44	B(WW-1)	B(WW-2)
42	Indian Creek (Linn Co.)	Iowa-Cedar	Y	17.40	A1	A3			
43	Indian Creek (Sac Co.)	Des Moines	Y	8.14	A1	A2			
44	Indian Creek (Sioux Co.)	Western	Y	15.76	A1	A2	6.33	B(WW-1)	B(WW-2)
45	Indian Creek (Tama Co.)	Iowa-Cedar	Y	0.30	A1	A2	0.3	B(WW-1)	B(WW-2)
46	Little Bear Creek (Poweshiek Co.)	Iowa-Cedar	Y	17.55	A1	A2			
47	Little Cedar River (Chickasaw/Floyd/Mitchell Co.)	Iowa-Cedar	N	60.80	A1	A1			
48	Little Cedar River (Mitchell Co.)	Iowa-Cedar	Y	8.04	A1	A2			
49	Little Flint Creek (Des Moines Co.)	Iowa-Cedar	Y	2.98	A1	A2	2.98	B(WW-1)	B(WW-2)
50	Little Maquoketa River (Dubuque Co.)	Northeast	N	8.00	A1	A1			
51	Little Maquoketa River (Dubuque Co.)	Northeast	Y	20.80	A1	A2			
52	Little Walnut Creek (Appanoose Co.)	Southern	Y	18.30	A1	A2	6.67	B(WW-1)	B(WW-3)
53	Lutes Creek (Marshall Co.)	Iowa-Cedar	Y	2.25	A1	A2	2.25	B(WW-1)	B(WW-2)
54	Marvel Creek (Adair Co.)	Southern	Y	8.22	A1	A2	8.22	B(WW-1)	B(WW-2)
55	Mitchell Creek (Jefferson Co.)	Skunk	Y	6.32	A1	A2	6.32	B(WW-1)	B(WW-2)
56	Mosquito Creek (Pottawattamie Co.)	Western	N	6.49	A1	A1			
57	Mosquito Creek (Pottawattamie Co.)	Western	Y	3.13	A1	A3			
58	Mosquito Creek (Pottawattamie/Harrison/Shelby Co.)	Western	Y	30.70	A1	A2			
59	Mosquito Creek (Shelby Co.)	Western	N	0.08	A1	A1			
60	Mosquito Creek (Shelby Co.)	Western	Y	7.41	A1	A2	1.1	B(WW-1)	B(WW-2)
61	Mud Creek (Benton Co.)	Iowa-Cedar	Y	0.81	A1	A2			
62	Mud Creek (Polk Co.)	Des Moines	Y	19.81	A1	A2			
63	Murray Creek (O'Brien Co.)	Western	Y	6.50	A1	A2	6.5	B(WW-1)	B(WW-2)
64	Neola Creek (Pottawattamie Co.)	Western	Y	0.34	A1	A2	0.34	B(WW-1)	B(WW-2)
65	North Timber Creek (Marshall Co.)	Iowa-Cedar	Y	22.05	A1	A2	8.31	B(WW-1)	B(WW-2)
66	Orange City Slough (Sioux Co.)	Western	Y	8.40	A1	A2	8.4	B(WW-1)	B(WW-2)
67	Otter Creek (Franklin Co.)	Iowa-Cedar	Y	7.06	A1	A2			
68	Otter Creek (Franklin Co.)	Iowa-Cedar	Y	0.52	A1	A3			
69	Otter Creek (Franklin Co.)	Iowa-Cedar	Y	4.81	A1	A2			
70	Platte River	Southern	Y	41.02	A1	A2	1.6	B(WW-1)	B(WW-2)
71	Plum Creek (Delaware Co.)	Northeast	Y	18.38	A1	A2			
72	Plum Creek (Delaware Co.)	Northeast	Y	0.63	A1	A3			
73	Plum Creek (Delaware Co.)	Northeast	Y	31.28	A1	A2	3.75	B(WW-1)	B(WW-2)
74	Plum Creek (Delaware Co.)	Northeast	N	0.27	No Rec Use	No Rec Use	0.27	General Use	General Use
75	Sewer Creek (Jasper Co.)	Skunk	Y	5.64	A1	A2	5.64	B(WW-1)	B(WW-2)

76	Shoal Creek (Appanoose Co.)	Southern	Y	23.14	A1	A2			
77	Sixmile Creek (Sioux Co.)	Western	Y	29.13	A1	A2	7.93	B(WW-1)	B(WW-2)
78	Snipe Creek (Marshall Co.)	Iowa-Cedar	Y	2.84	A1	A2	2.84	B(WW-1)	B(WW-2)
79	South Timber Creek (Marshall Co.)	Iowa-Cedar	Y	12.60	A1	A2			
80	Spring Creek (Franklin Co.)	Iowa-Cedar	Y	6.89	A1	A2			
81	Spring Creek (Franklin Co.)	Iowa-Cedar	Y	0.33	A1	A3			
82	Spring Creek (Franklin Co.)	Iowa-Cedar	Y	2.58	A1	A2			
83	Squaw Creek (Franklin Co.)	Iowa-Cedar	Y	9.29	A1	A2			
84	Squaw Creek (Franklin Co.)	Iowa-Cedar	Y	2.61	A1	A3			
85	Squaw Creek (Linn Co.)	Iowa-Cedar	Y	1.61	A1	A2			
86	Stony Creek (Clay Co.)	Western	Y	1.35	A1	A2			
87	Sugar Creek (Keokuk Co.)	Skunk	Y	1.70	A1	A2	1.7	B(WW-1)	B(WW-2)
88	Timber Creek (Marshall Co.)	Iowa-Cedar	Y	4.50	A1	A2			
89	Twelvemile Creek (Union Co.)	Southern	Y	21.25	A1	A2	11.36	B(WW-1)	B(WW-2)
90	Unnamed Creek (#1) (BP Products Ottumwa Terminal)	Des Moines	N	0.27	No Rec Use	No Rec Use	0.27	General Use	General Use
91	Unnamed Creek (#1) (City of Atkins)	Iowa-Cedar	Y	0.39	A1	A2	0.39	B(WW-1)	B(WW-2)
92	Unnamed Creek (#1) (City of Brighton)	Skunk	Y	0.16	A1	A2	0.16	B(WW-1)	B(WW-2)
93	Unnamed Creek (#1) (City of Cincinnati)	Southern	N	0.01	No Rec Use	No Rec Use	0.014	General Use	General Use
94	Unnamed Creek (#1) (City of Creston WTP)	Southern	N	0.05	No Rec Use	No Rec Use	0.05	General Use	General Use
95	Unnamed Creek (#1) (City of Elkhart)	Skunk	Y	0.41	A1	A2	0.41	B(WW-1)	B(WW-2)
96	Unnamed Creek (#1) (City of Middletown)	Iowa-Cedar	N	0.70	No Rec Use	No Rec Use	0.7	General Use	General Use
97	Unnamed Creek (#1) (City of Milo)	Des Moines	Y	2.38	A1	A2	2.38	B(WW-1)	B(WW-3)
98	Unnamed Creek (#1) (City of Thayer)	Southern	N	1.46	No Rec Use	No Rec Use	1.46	General Use	General Use
99	Unnamed Creek (#1) (HWH Company)	Iowa-Cedar	Y	0.47	A1	A2	0.47	B(WW-1)	B(WW-2)
100	Unnamed Creek (#1) (HWH Company)	Iowa-Cedar	N	0.49	No Rec Use	No Rec Use	0.49	General Use	General Use
101	Unnamed Creek (#1) (Lakewood Estates MHP)	Northeast	Y	3.10	A1	A2	3.1	B(WW-1)	B(WW-2)
102	Unnamed Creek (#1) (Little Sioux Corn Processing)	Western	Y	2.00	A1	A2	2	B(WW-1)	B(WW-2)
103	Unnamed Creek (#1) (Missouri Valley Energy - Exira)	Western	Y	0.32	A1	A2	0.32	B(WW-1)	B(WW-2)
104	Unnamed Creek (#1) (Missouri Valley Energy - Exira)	Western	N	0.02	A1	A1	0.02	B(WW-1)	B(WW-2)
105	Unnamed Creek (#1) (Missouri Valley Energy - Exira)	Western	Y	0.29	A1	A2	0.29	B(WW-1)	B(WW-2)
106	Unnamed Creek (#1) (Siouxland Energy)	Western	Y	1.40	A1	A2	1.4	B(WW-1)	B(WW-2)
107	Unnamed Creek (#1) (Southdale Addition)	Des Moines	N	0.17	No Rec Use	No Rec Use	0.17	General Use	General Use
108	Unnamed Creek (#2) (BP Products Ottumwa Terminal)	Des Moines	N	0.46	No Rec Use	No Rec Use	0.46	General Use	General Use
109	Unnamed Creek (#2) (City of Atkins)	Iowa-Cedar	Y	0.95	A1	A2	0.95	B(WW-1)	B(WW-2)
110	Unnamed Creek (#2) (City of Brighton)	Skunk	Y	2.68	A1	A2	2.68	B(WW-1)	B(WW-2)
111	Unnamed Creek (#2) (City of Cincinnati)	Southern	Y	4.06	A1	A2	4.06	B(WW-1)	B(WW-2)
112	Unnamed Creek (#2) (City of Creston WTP)	Southern	N	0.85	No Rec Use	No Rec Use	0.85	General Use	General Use
113	Unnamed Creek (#2) (City of Elkhart)	Skunk	N	1.68	No Rec Use	No Rec Use	1.68	General Use	General Use
114	Unnamed Creek (#2) (City of Elkhart)	Skunk	Y	0.89	A1	A2	0.89	B(WW-1)	B(WW-2)
115	Unnamed Creek (#2) (City of Hedrick)	Skunk	Y	1.42	A1	A2	1.42	B(WW-1)	B(WW-2)
116	Unnamed Creek (#2) (City of Middletown)	Iowa-Cedar	Y	2.30	A1	A2	2.3	B(WW-1)	B(WW-2)
117	Unnamed Creek (#2) (City of Milo)	Des Moines	Y	1.38	A1	A2	1.38	B(WW-1)	B(WW-2)
118	Unnamed Creek (#2) (Little Sioux Corn Processing)	Western	N	0.38	No Rec Use	No Rec Use	0.38	General Use	General Use
119	Unnamed Creek (#2) (Missouri Valley Energy - Exira)	Western	N	0.37	No Rec Use	No Rec Use	0.37	General Use	General Use
120	Unnamed Creek (#2) (Oak Hills Subdivision)	Iowa-Cedar	Y	1.47	A1	A2	1.47	B(WW-1)	B(WW-2)
121	Unnamed Creek (#2) (Siouxland Energy)	Western	N	0.15	No Rec Use	No Rec Use	0.15	General Use	General Use
122	Unnamed Creek (#2) (Southdale Addition)	Des Moines	N	1.00	No Rec Use	No Rec Use	1	General Use	General Use
123	Unnamed Creek (#2) (West Kimberly MHP)	Northeast	N	1.02	No Rec Use	No Rec Use	1.02	General Use	General Use
124	Unnamed Creek (#2a) (Lakewood Estates MHP)	Northeast	N	0.27	No Rec Use	No Rec Use	0.27	General Use	General Use
125	Unnamed Creek (#3) (City of Milo)	Des Moines	N	0.11	No Rec Use	No Rec Use	0.11	General Use	General Use
126	Unnamed Creek (#3) (UP Electronics)	Iowa-Cedar	N	0.13	No Rec Use	No Rec Use	0.13	General Use	General Use
127	Unnamed Creek (Ajinomoto USA)	Des Moines	N	0.51	No Rec Use	No Rec Use	0.51	General Use	General Use
128	Unnamed Creek (aka Johnson's Creek)	Western	Y	0.45	A1	A2	0.45	B(WW-1)	B(WW-2)
129	Unnamed Creek (BP Products Cedar Rapids)	Iowa-Cedar	N	0.80	No Rec Use	No Rec Use	0.8	General Use	General Use
130	Unnamed Creek (Bulk Petroleum)	Iowa-Cedar	N	0.62	No Rec Use	No Rec Use	0.62	General Use	General Use
131	Unnamed Creek (Bulk Petroleum)	Iowa-Cedar	Y	0.47	A1	A2	0.47	B(WW-1)	B(WW-2)
132	Unnamed Creek (Chantland-PVS Company)	Des Moines	Y	0.41	A1	A2	0.41	B(WW-1)	B(WW-2)
133	Unnamed Creek (City of Bondurant)	Des Moines	N	0.09	No Rec Use	No Rec Use	0.09	General Use	General Use
134	Unnamed Creek (City of Carroll)	Des Moines	Y	0.71	A1	A2			
135	Unnamed Creek (City of Creston WWTP)	Southern	Y	0.28	A1	A2	0.38	B(WW-1)	B(WW-2)
136	Unnamed Creek (City of Denmark)	Skunk	N	3.27	No Rec Use	No Rec Use	3.27	General Use	General Use
137	Unnamed Creek (City of Earlville)	Northeast	Y	0.66	A1	A2	0.66	B(WW-1)	B(WW-2)
138	Unnamed Creek (City of Gilman)	Iowa-Cedar	N	0.62	No Rec Use	No Rec Use	0.62	General Use	General Use
139	Unnamed Creek (City of Greenfield)	Southern	N	0.02	No Rec Use	No Rec Use	0.02	General Use	General Use
140	Unnamed Creek (City of Hedrick)	Skunk	Y	0.49	A1	A2	0.49	B(WW-1)	B(WW-2)
141	Unnamed Creek (City of Hills)	Iowa-Cedar	Y	1.01	A1	A2	1.01	B(WW-1)	B(WW-2)
142	Unnamed Creek (City of Hospers)	Western	N	0.77	No Rec Use	No Rec Use	0.77	General Use	General Use
143	Unnamed Creek (City of Huxley)	Skunk	Y	0.54	A1	A2	0.54	B(WW-1)	B(WW-2)
144	Unnamed Creek (City of Laurel)	Iowa-Cedar	N	0.38	No Rec Use	No Rec Use	0.38	General Use	General Use
145	Unnamed Creek (City of Malvern)	Southern	Y	0.86	A1	A2	0.86	B(WW-1)	B(WW-2)
146	Unnamed Creek (City of Remsen)	Western	Y	0.42	A1	A2	0.42	B(WW-1)	B(WW-2)
147	Unnamed Creek (City of Rickardsville)	Northeast	Y	0.78	A1	A2	0.78	B(WW-1)	B(WW-2)
148	Unnamed Creek (City of Sioux Center)	Western	Y	1.45	A1	A2	1.45	B(WW-1)	B(WW-2)
149	Unnamed Creek (City of Sully)	Skunk	Y	1.99	A1	A2	1.99	B(WW-1)	B(WW-2)
150	Unnamed Creek (Corn Belt Power)(AKA Bull Ditch)	Western	Y	1.20	A1	A2	1.2	B(WW-1)	B(WW-2)
151	Unnamed Creek (DNR Viking Lake)	Southern	Y	2.42	A1	A2	2.42	B(WW-1)	B(WW-2)
152	Unnamed Creek (DNR Viking Lake)	Southern	N	0.23	No Rec Use	No Rec Use	0.23	General Use	General Use
153	Unnamed Creek (Echo Valley MHP #2)	Iowa-Cedar	Y	0.09	A1	A2	0.09	B(WW-1)	B(WW-2)
154	Unnamed Creek (Ecosystems Inc.)	Des Moines	Y	0.75	A1	A2	0.75	B(WW-1)	B(WW-2)
155	Unnamed Creek (Gold Key Motel)	Iowa-Cedar	N	1.01	No Rec Use	No Rec Use	1.01	General Use	General Use
156	Unnamed Creek (Hancor Inc.)	Northeast	N	0.56	No Rec Use	No Rec Use	0.56	General Use	General Use
157	Unnamed Creek (Heartland Lysine)	Des Moines	Y	0.70	A1	A2	0.7	B(WW-1)	B(WW-2)

158	Unnamed Creek (IAAP)	Skunk	Y	0.63	A1	A2	0.63	B(WW-1)	B(WW-3)
159	Unnamed Creek (IAAP)	Skunk	N	0.85	No Rec Use	No Rec Use	0.85	General Use	General Use
160	Unnamed Creek (IAMU)	Des Moines	Y	2.72	A1	A2	2.72	B(WW-1)	B(WW-2)
161	Unnamed Creek (John Deere Davenport Works)	Northeast	Y	4.20	A1	A3	4.2	B(WW-1)	B(WW-2)
162	Unnamed Creek (John Deere Engineering Center)	Iowa-Cedar	Y	0.73	A1	A2	0.73	B(WW-1)	B(WW-2)
163	Unnamed Creek (Jolly Roger Campground)	Iowa-Cedar	N	0.11	No Rec Use	No Rec Use	0.11	General Use	General Use
164	Unnamed Creek (Magellan Pipeline - Johnson Co.)	Iowa-Cedar	Y	0.60	A1	A3	0.6	B(WW-1)	B(WW-2)
165	Unnamed Creek (McCreary Community Building)	Des Moines	Y	0.58	A1	A2	0.58	B(WW-1)	B(WW-2)
166	Unnamed Creek (Murphy Farms)	Des Moines	N	0.63	No Rec Use	No Rec Use	0.63	General Use	General Use
167	Unnamed Creek (Siouxpreme Packing)	Western	Y	2.90	A1	A2	2.9	B(WW-1)	B(WW-2)
168	Unnamed Creek (Stacyville COOP Creamery)	Iowa-Cedar	Y	0.04	A1	A2	0.04	B(WW-1)	B(WW-2)
169	Unnamed Creek (Tri-Center Community School)	Western	Y	0.97	A1	A2	0.97	B(WW-1)	B(WW-2)
170	Unnamed Creek (Van Diest Supply)	Des Moines	N	2.45	No Rec Use	No Rec Use	2.45	General Use	General Use
171	Unnamed Creek (Wells Dairy - North Plant)	Western	Y	0.21	A1	A3	0.21	B(WW-1)	B(WW-2)
172	Unnamed Creek (Wells Dairy Mill Plant)	Western	Y	0.02	A1	A2	0.02	B(WW-1)	B(WW-2)
173	Walnut Creek (Appanoose Co.)	Southern	N	0.33	A1	A1			
174	Walnut Creek (Jefferson Co.)	Skunk	N	1.08	A1	A1	1.08	B(WW-1)	B(WW-1)
175	Waterman Creek (O'Brien Co.)	Western	Y	1.20	A1	A2			
176	Waugh Branch (Keokuk Co.)	Skunk	Y	1.80	A1	A2	1.8	B(WW-1)	B(WW-2)
177	West Branch Blue Creek (Benton Co.)	Iowa-Cedar	Y	3.23	A1	A2	3.23	B(WW-1)	B(WW-2)
178	West Branch Floyd River	Western	Y	53.30	A1	A2	5.7	B(WW-1)	B(WW-2)
179	Willow Creek (Cerro Gordo Co.)	Iowa-Cedar	Y	3.60	A1	A3			
180	Willow Creek (Cerro Gordo Co.)	Iowa-Cedar	Y	2.57	A1	A2			
181	Willow Creek (Cerro Gordo Co.)	Iowa-Cedar	Y	0.28	A1	A3			
182	Willow Creek (Cerro Gordo Co.)	Iowa-Cedar	Y	4.91	A1	A2			
		Yes	134						
		No	46						

UA/UAA Batch #2 Summary Table

Recreational Use Mileage Breakdown		Miles	% of assessed stream miles	Segment Count
A1 Miles		84.30	8.69%	11
A2 Miles		799.88	82.47%	119
A3 Miles		67.92	7.00%	17
No Rec Use Miles		22.76	2.35%	35
Total		**969.95**		**182**
Aquatic Life Use Mileage Breakdown				
B(WW-1)		1.75	0.62%	3
B(WW-2)		246.87	87.83%	91
B(WW-3)		9.68	3.44%	3
General Use		22.76	8.10%	35
Total		**281.06**		**132**

Memorandum

To: Commissioners of the Environmental Protection Commission

CC: Wayne Gieselman, Iowa Department of Natural Resources

From: Jessica Montana, Iowa Department of Economic Development

Date: January 13, 2009

Re: Water Quality Advocacy Bi-Annual Update

My sincerest apologies for being unable to attend and present the Water Quality Advocacy Bi-Annual Update in person; unfortunately, I had to attend to a family emergency out of the State.

Regardless, the Water Quality Advocate position has been successful since its creation in April 2007. Below are some of the accomplishments, connections and strides attempted through the Water Quality Advocate position.

After review, if you have additional questions or comments regarding the Water Quality Advocate position, please feel free to contact me at the following:

Jessica Montana
Water Quality Advocate
Iowa Department of Economic Development
200 E. Grand Avenue
Des Moines, Iowa 50309
Work: 515-242-4871
Mobile: 515-494-4593
Jessica.montana@iowalifechanging.com
www.iowalifechanging.com/business/water_quality.html

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Summary of Water Quality Advocate position

Water Quality Advocate website

The Water Quality Advocate provides assistance to entities requiring National Pollutant Discharge Elimination System (NPDES) permits (pursuant to 2006 Iowa Acts, Chapter 1178, Section 27). A focus of the Water Quality Advocate (WQA) is to assist communities in understanding and complying with its wastewater requirements, including applying for its NPDES permit. Additionally, the WQA focuses efforts towards the unsewered communities initiative. The WQA also serves as an objective source of information and assistance to small businesses, the Iowa Department of Economic Development (IDED) and the Iowa Department of Natural Resources (IDNR).

Initially, with the WQA introduction to other state agencies, private associations, communities and businesses, the overall response was welcoming. One comment included, "Good, Iowa needs this sort of position."

Assistance provided includes, but not limited to:

- Visit communities to provide direct assistance with its NPDES permits
- Assist IDNR staff, including permitting and financial assistance
- Assist State Revolving Fund to draft Request for Proposals and contract templates for the 2008 Utility Management Organizations contracts
- Facilitate monthly meetings between federal and state funding sources, including IDED, IDNR, IFA, USDA and WIRB
- Facilitate quarterly meetings between utility management organizations and federal and state funding sources
- Assist writing the business plan for the Iowa Rainscaping Initiative

Education and Outreach

- Created and maintain Water Quality Advocacy website, including listserv option, water-related presentations, upcoming events, EPA water quality updates and informational factsheets.
- Serve as liaison with Environmental Finance Center, satellite office to bring EFC to State of Iowa. This tool provides technical and financial assistance

and training for water-wastewater projects and "provide[s] help to those facing the "how to pay" challenges of environmental protection.

- Sponsored *Rain Gardens for Managing Stormwater Quality* Workshop with the Iowa Stormwater Partnership.

Presentations given:

- 2008 Iowa Disaster Recovery Conference – NPDES Permitting Requirements
- IDNR Field Office Lunch N Learns –Water Quality Advocate Resource
- Iowa Association of Municipal Utilities –State Water Quality Programs
- Iowa Government Oversight Committee Meeting – Unsewered Communities
- Iowa Rural Water Association, September 2007 & February 2008 – NPDES Permitting Requirements
- Master Builders of Iowa – NPDES Permitting Requirements
- Municipalities – NPDES Permitting Requirements
- Orenco Services, Inc. – Unsewered Communities and Financial Assistance

Unsewered Community Initiative

- Developed a living, working document for the Unsewered Community Initiative. This document includes communities throughout Iowa who have inadequate, improper or no wastewater treatment. Updating the list helps create a user-friendly list for federal and state officials, including those agencies who finance water-wastewater infrastructure projects
- Created and distributed an unsewered community marketing material. This material includes the importance of getting sewered, traditional and alternative wastewater technology options, available water-wastewater funding sources, utility management organization contact information and success stories from communities who have been sewered.

- Coordinate and facilitate meetings to discuss initiative and update 2005 Strategic Plan

Workshops

- The NPDES Permit: The Application Process
  - Audience: municipalities
  - Topic: NPDES Permitting Process, including UA/UAA process and funding opportunities available through IDNR, IDED, IFA, USDA and WIRB
  - Materials: Safe Place folder for NPDES Permit
  - Continuing Education Units available for wastewater operators
- Training on Demand for NPDES Wastewater Permitting Information Exchange (WWPIE) database
  - Free, online training for wastewater operators and city clerks to learn about new permitting tool for applying for new permits or renewing already-existing permits for WWPIE
  - WWPIE – This website will allow permit holders to renew and complete their NPDES applications online. The ultimate goal of WWPIE is to reduce inaccuracies and to increase efficiency for NPDES permit holders when submitting their applications.

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WATER QUALITY ADVOCATE

Iowa's surface and groundwater serves as a precious resource for industries, businesses and communities and provides state citizens and visitors with invaluable cultural and recreational opportunities. While water quality is regulated by the Iowa Department of Natural Resources (IDNR), regulatory compliance assistance is available through the Iowa Department of Economic Development (IDED) Water Quality Advocacy Program.

> Water Quality Advocacy Fact Sheet [PDF: 223k] — Assisting Your Business With Environmental Resources

> Water Quality Advocate — Receive federal and state updates regarding water quality issues in Iowa, including, but not limited to, permitting and compliance requirements, educational opportunities and legislative updates. Intended audience: everyone - communities, businesses, local interest groups and private citizens. ***Sign Up Here Today!***

Financial Assistance

Water/Wastewater Funding Opportunities [PDF: 90k] — Funding Available for Water-Wastewater Needs

Clean Water Starts with You - Make the Connection [PDF: 5MB]

Watershed Improvement Review Board [www.iowaagriculture.gov/IWIRB.asp] — The Watershed Improvement Review Board (WIRB) was established in 2005 by the Iowa Legislature to provide grants to watershed and water quality projects. If you are an unsewered community applying for WIRB funds, see www.iowaagriculture.gov/IWIRB/pdf/UnseweredCommunities.pdf for additional information. This document serves to provide guidance to an unsewered community applying for Watershed Improvement Funds administered by the WIRB.

EPA Region 7 Environmental Finance Center [http://efc.boisestate.edu/efc/] — The Region 7 EFC provides communities in Iowa, Kansas, Missouri and Nebraska with services, tools, financial and technical assistance.

Watershed Improvement Grants [www.iowadnr.gov/water/watershed/grants.html] — The Iowa DNR offers grants to create a watershed project. A watershed project can make changes on the land to improve water quality in Iowa's rivers, streams and lakes.

News & Events

Iowa Public Television will present a special documentary about issues related to America's water infrastructure this weekend. Called "**Liquid Assets: The Story of Our Water Infrastructure**", this documentary will take a look at drinking water, wastewater and stormwater systems and their critical role in day-to-day life, public safety and economic development — and the many issues facing these systems nationwide, including the serious factor of aging of underground infrastructure and the need for more financial investment in its improvement. Watch the trailer [liquidassets.psu.edu].

This 90-minute special will air at 5:30 p.m. January 11, statewide (confirm broadcast time through your local listings).

HOST AN EVENT:
liquidassets.psu.edu/outreach/toolkit/LiquidAssets_CommunityToolkit_0708.pdf

August 6, 2008 — EPA Continues Work on Impacts of Pharmaceuticals in Water [PDF: 24k]

EPA Approves latest Water Quality Standards for Iowa

[www.epa.gov/region07/water/iowa_water_quality_stds_decision_letter.pdf]

Wastewater

National Pollutant Discharge Elimination System (NPDES) [www.iowadnr.com/water/npdes/] — An NPDES permit allows direct discharge of wastewater to surface waters.

- Permits & Forms [www.iowadnr.gov/water/npdes/forms2.html]

Wastewater Permitting Information Exchange (WWPIE) [https://programs.iowadnr.gov/wwpie/] — You may search for individual NPDES permits, such as city or industry wastewater permits. Also, NPDES permit holders or their designees can register in order to apply for permits online. Registered permit holders or appropriate representatives can review, submit, and pay for permit applications.

Wastewater Constructions [www.iowadnr.gov/water/wastewater/downloads.html]

- Design Standards & Manuals [www.iowadnr.com/water/wastewater/]
- Forms [www.iowadnr.gov/water/wastewater/downloads.html]

Water Supply

Private Well Applications and Forms [www.iowadnr.gov/water/wells/concert.html]

Miscellaneous Water Forms, including Animal Feeding, Flood Plain, Dam safety [www.iowadnr.gov/water/forms.html]

Water Quality

Water Quality Standards [www.iowadnr.com/water/standards/] — The DNR manages water quality through the implementation of the state's Water Quality Standards. These standards are found in Chapter 61 of the Iowa Administrative Code. To evaluate the status of our water quality, the DNR both conducts monitoring and uses information from other agencies that monitor the quality of the state's surface waters and groundwater

Use Assessment/Use Attainability Analysis (UA/UAA) [www.iowadnr.gov/water/uaa.html] — Recent rulemaking and 2006 legislative action tasked IDNR to establish new levels of water quality protection. The goal is to bring Iowa closer to compliance with the Clean Water Act requirements and U.S. EPA regulations and ensure all 26,000 miles of Iowa's perennial (flowing year-round) streams are protected at the highest levels for recreation and aquatic life uses (also known as fishable/swimmable).

Antidegradation [PDF: 237k] — Antidegradation refers to federal regulations designed to maintain and protect high quality waters and existing water quality in other waters from unnecessary pollution. Visit www.iowadnr.com/water/standards/antidegradation.html for additional Antidegradation information, including maps of the currently proposed Outstanding Iowa Water areas.

Watersheds

IDNR Watershed Improvement [www.iowadnr.com/water/watershed/] — Clean watersheds and clean water start with you, and the DNR is here to help. With watershed improvement projects and other assistance, the DNR can work with you to improve our water together.

Watershed Improvement Review Board [www.iowaagriculture.gov/IWIRB.asp] — The Watershed Improvement Review Board (WIRB) was established in 2005 by the Iowa Legislature to provide grants to watershed and water quality projects.

Stormwater

Stormwater Permitting Requirements [www.iowadnr.com/water/stormwater/]

Iowa Stormwater Management Manual [www.ctre.iastate.edu/pubs/stormwater/index.cfm] — The Iowa Stormwater Management Manual presents planning and design guidelines for the management of stormwater quality and quantity in the urban environment. Though it is not a comprehensive list, this manual includes the most commonly-used stormwater management best management practices. While this manual includes most of the commonly-used stormwater management BMPs, it is not a comprehensive list.

Urban Stormwater Retrofit Practices Manual [www.cwp.org/Downloads/ELC_USRM3.pdf] — Published in August 2007, the Urban Stormwater Retrofit Practices Manual from the Center of Watershed Protection outlines the most recent ideas on how retrofits can help restore small urban watersheds. The manual was written to organize the enormous amount of information needed to restore small urban watersheds into a format that can easily be accessed by watershed groups, municipal staff, environmental consultants and other users.

Iowa Rainscaping Manual [ftp://ftp-fc.sc.egov.usda.gov/IA/news/RainGardens.pdf] — Rain Gardens are an infiltration-based stormwater management practice that relies on soils with good percolation rates to help manage rainfall and improve water quality. Install one today!

Presentations

Basic Stormwater Permitting Requirements [PDF: 2.2MB]

Introduction to Antidegradation January 2008 EPC Meeting [PDF: 902k]

National Pollutant Discharge Elimination System (NPDES) Permit [PDF: 2.6MB] — The Application Process

Effects of Use Attainability Analysis on Wastewater Treatment Plants, October 2007 [PDF: 145k]

The Pretreatment Streamlining Rule: Overview of the Changes to the National Pretreatment Regulations, April 2007 [PDF: 491k]

Helpful Links

Water Quality Helpful Links [PDF: 56k]

Water Quality Home Page [www.iowadnr.gov/water/]

Water Web [http://programs.iowadnr.gov/iowawaterweb/Map.aspx]

Interactive Mapping [http://csbweb.igsb.uiowa.edu/imsgate/introduction/home.asp]

Water Quality Standards [www.iowadnr.gov/water/standards/]

The Environmental Protection Agency [www.epa.gov/enviro/]

IDNR Water Quality Listserv Sign-up [www.iowadnr.gov/water/listserv.html] — Get the latest water quality information directly to your inbox. Subscribe to the IDNR's Water Quality listserv.

The Environmental Business Assistance Portal
[regassist.iowa.gov/business_resources/environ_assistance/] — Provides easy access to assistance with regulatory requirements and resources for your business operation or project. Information on compliance requirements, including permitting, is available.

Information on the Environmental Assistance Portal includes:

- Wastewater Construction Permits
- NPDES Permits
- Stormwater Permits
- Floodplains Permit
- Sovereign Land Construction Permit
- Funding and Technical Assistance, including contact information

To Learn More:

Phone: 515.242.4871 or 800.351.4668
E-mail: regulatoryassistance@iowalifechanging.com

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DEPARTMENT OF NATURAL RESOURCES
RICHARD A. LEOPOLD, DIRECTOR

2009 Department of Natural Resources Proposed Legislation
Environmental Services Division

1. Underground Storage Tank Program Funding

There is an annual tank management fee of $65 paid by owners and operators of underground storage tanks of which the DNR receives 23% of the approx. $550,000 collected annually. Under Iowa Code section 455B.479, 77% of the annual fees is transferred to the Iowa Comprehensive UST Fund Board. Since 2006, the UST Fund Board and the DNR have entered into a 28E agreement to provide the transfer of the 77% of fees to the DNR for administration of the UST operations and leak prevention program. Basically this proposal is for the DNR to retain 100% of the tank management fee that it collects to provide ongoing funding for the UST program.

2. Engine Idle Reduction Program

This proposal would establish a new policy for engine idling. According to an EPA model state idling law paper, approx. 15 states and dozens of local jurisdictions have idling laws. Since Iowa has areas of the state likely to violate federal air quality standards for particulate matter, the reduction of idling would help to reduce pm levels statewide. MO is currently proposing a heavy duty diesel idle reduction program.

3. Imposition of State Tonnage Fee for Solid Waste Disposal

This is a 2 part proposal removing the state tonnage fee exemption for construction and demolition landfills and imposing the tonnage fee on all wastes passing through transfer stations that will not be disposed of at an Iowa landfill.

4. Residential Burning Ban in Cities

This proposal is to establish a phased-in ban on the burning of residential waste (household trash and landscape waste) in and near municipalities. The phase-in will start in calendar year 2010 for cities with a population of 2500 or greater and will apply to all cities beginning in calendar year 2013.

5. Increase the Cap for Public Water Supply Program Fees

The proposal is to raise the statutory cap on public water supply fees from $350,000 to $1 million to allow for the Department, through rulemaking, to increase fees as needed to support the Drinking Water Program. The current cap was established in 1995 and does not take into account increased additional federal requirements and increasing program costs. Adequate funding is being sought to ensure that DNR can continue to conduct EPA-required elements; that operating permits are issued in a timely manner and that technical assistance remains available to public water supplies, particularly small systems, to help them comply with regulations and resolve issues within their systems.

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